

NON-PUBLIC?: N  
ACCESSION #: 9211030300  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Indian Point Unit No. 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000247

TITLE: Manual Turbine Trip resulting in Reactor Trip  
EVENT DATE: 09/26/92 LER #: 92-018-00 REPORT DATE: 10/26/92

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 044

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Michael A. Whitney, Senior Engineer TELEPHONE: (914) 526-5131

COMPONENT FAILURE DESCRIPTION:  
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:  
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

#### ABSTRACT:

On September 26, 1992 at 0055 hours, one of the four turbine control valves for the Main Turbine Generator closed automatically. Upon review of existing plant guidance on out-of-normal control valve configurations and discussions with engineering personnel, a controlled shutdown was commenced as a conservative measure to prevent main turbine rotor unbalance. At 0204 hours, with the unit operating at approximately 44% power, the turbine was manually tripped resulting in a reactor trip. The turbine was tripped when the previously closed turbine control valve began erratically opening and closing.

Upon completion of a post trip review and a further review of the events by the Station Nuclear Safety Committee, a reactor restart was initiated.

The generator breakers were closed on the grid at approximately 0051 hours on September 27, 1992. There was no impact on the health and safety of the public.

END OF ABSTRACT

TEXT PAGE 2 OF 4

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Manual turbine trip resulting in reactor trip.

EVENT DATE:

September 26, 1992

REPORT DUE DATE:

October 26, 1992

REFERENCES:

Significant Occurrence Report (SOR) 92-474

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On September 26, 1992 at 0020, during a unit startup, the Indian Point 2 reactor was being stabilized at 93% reactor power in preparation for a heat balance calibration of the excore nuclear instrumentation. At 0055, the #4 upper right (UR) control valve on the main turbine generator automatically closed. This valve is one of four valves that regulate steam flow. The closure of this valve caused an immediate reduction in power output of 157 MWe. The operators commenced a manual rod insertion to balance primary and secondary plant load. All automatic and manual actions were in accordance with plant procedures. All temperatures and pressures and the rates of change of those parameters were within the plant design values.

By 0104 hours the plant was stabilized at 706 MWe (78% reactor power) and an evaluation of the plant status commenced. The UR control valve No. 4 closed without any apparent causal initiation. The upper left (UL)

control valve was closed as it normally would be for that power level. There was no visible evidence of the cause for valve failure (i.e., oil line break, mechanical breakage, etc.).

TEXT PAGE 3 OF 4

#### DESCRIPTION OF OCCURRENCE: (continued)

In accordance with manufacturer's recommendations that operation at power with more than one control valve/stop valve closed should be avoided, a plant shutdown was commenced. During the shutdown, other oscillations of the control valve occurred. With the reactor at 44% power, the Senior Watch Supervisor directed that the turbine be manually tripped. Since reactor power was above the turbine trip/reactor trip interlock power (P-8) of 20%, the reactor tripped automatically due to the turbine trip.

#### ANALYSIS OF OCCURRENCE:

This report is being made since actuation of the Reactor Protection System (RPS) occurred. Any manual or automatic actuation of the RPS is reportable under 10 CFR 50.73 (a) (2) (iv). There were no adverse safety implications for this event.

#### CAUSE OF OCCURRENCE:

The cause of the closure of #4 UR control stop valve was determined to be worn electrical insulation which resulted in an electrical ground in the Independent Electrical Overspeed Protection System (IEOPS) solenoid coil for that valve coincident with a second ground in No. 21 DC bus.

During the power escalation up to and including 9/26/92, intermittent ground alarms began appearing on 21 DC bus. Two grounds are required for current flow in a DC circuit. The bus ground alarm does not indicate the number of grounds present or their location. The coil ground associated with the IEOPS coil in conjunction with a second ground completed a current path for electrical flow that caused the alarm. The second ground was subsequently located on the 22 Moisture Reheater/Separator (MSR) magnetroller. This ground was corrected.

The station Equipment Failure Analysis Engineer evaluated the IEOPS coil failure itself, as well as the IEOPS preventive maintenance and historical reliability information. He found that the degraded condition of the insulation at the failure point indicated that the failure had occurred over a long period of time and was caused by the initial design of the coil. There were no physical protective devices to protect the cable insulation, which degraded over time and grounded the coil to the

end plate. The current periodic surveillance test on the circuit verifies continuity between the wires. This continuity check will not detect the presence of grounds, only the presence of a short or open circuit. The station Equipment Failure Analysis Engineer reviewed the past twelve months test results and found no indications that ground problems had been detected.

TEXT PAGE 4 OF 4

CORRECTIVE ACTION:

Prior to restarting the plant following the reactor trip, the IEOPS coil for turbine control valve No. 4 was replaced and tested. The other IEOPS coils on the turbine stand were megger tested to verify their insulation integrity.

A post trip review was completed and a Station Nuclear Safety Committee was held on 9/26/92 to review the trip, its cause and the follow-up actions. It was concluded that the actions taken during and following the trip were adequate and appropriate.

In order to reduce the probability of recurrence of this event the surveillance test (PC-R20) for the IEOPS solenoid coils will be revised by March 30, 1993 to include megger testing. In addition, during the 1993 refueling outage the IEOPS solenoid coils will be physically inspected and appropriate action will be taken as indicated by the inspection results.

ATTACHMENT 1 TO 9211030300 PAGE 1 OF 1

Stephen B. Bram  
Vice President

Consolidated Edison Company of New York, Inc.  
Indian Point Station  
Broadway & Bleakley Avenue October 26, 1992  
Buchanan, NY 10511  
Telephone (914) 737-8116 Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 92-18-00

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

The attached Licensee Event Report LER 92-18-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

cc: Mr. Thomas T. Martin  
Regional Administrator - Region I  
US Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Francis J. Williams, Jr., Project Manager  
Project Directorate I-1  
Division of Reactor Projects I/II  
US Nuclear Regulatory Commission  
Mail Stop 14B-2  
Washington, DC 20555

Senior Resident Inspector  
US Nuclear Regulatory Commission  
PO Box 38  
Buchanan, NY 10511

\*\*\* END OF DOCUMENT \*\*\*

---